

CLAIMS

We claim:

1. A method of methanol steam reforming comprising:
5 contacting methanol and water vapor with a catalyst;
wherein the catalyst comprises a palladium on zinc oxide catalyst
wherein said catalyst has a pore volume and at least 20% of the catalyst's pore
volume is composed of pores in the size range of 0.1 to 300 microns; and
forming hydrogen from the reaction of said methanol and water vapor at a rate of
10 at least 1.5 mole methanol per gram catalyst per hour (1.5 mole methanol / (g
catalyst)(hr)).
2. A fuel processing system comprising a fuel source connected to a reactor;
wherein the reactor contains a palladium on zinc oxide catalyst
15 wherein said catalyst has a pore volume and at least 20% of the catalyst's pore
volume is composed of pores in the size range of 0.1 to 300 microns; and
a fuel cell, wherein the fuel cell is connected to the reactor such that hydrogen gas
generated in the reactor can flow into the fuel cell.
- 20 3. The fuel processing system of claim 2 wherein the reactor comprises an inlet an
outlet and further wherein the catalyst and the reactor walls define an open channel from
the inlet to the outlet.
4. The fuel processing system of claim 2 wherein the fuel source comprises a tank
25 containing methanol.
5. A method of alcohol steam reforming comprising:
contacting methanol and water with a catalyst;
wherein the catalyst comprises palladium or ruthenium on cerium-promoted
30 zirconia or alumina; and

forming hydrogen from the reaction of said methanol and water vapor.

6. A method of alcohol steam reforming comprising:

contacting methanol and water with a catalyst;

5 wherein the catalyst comprises a palladium-ruthenium alloy on zirconia or alumina; and

forming hydrogen from the reaction of said methanol and water vapor.

7. The method of claim 6 wherein the catalyst comprises a higher weight percent of

10 palladium than of ruthenium.

15